CLAIMS

What is claimed is:

1. A recombinant receptor comprising:

a ligand-binding domain and

a domain that comprises a heterologous bait polypeptide,

wherein the activation of said recombinant receptor is inhibited by binding of a prey polypeptide to said heterologous bait peptide.

2. The recombinant receptor of claim 1, wherein said recombinant receptor is a transmembrane receptor.

3. The recombinant receptor of claim 1 or claim 2, wherein said recombinant receptor is activated by the addition of a compound that disrupts the bait-prey interaction.

4. The recombinant receptor claim 1, claim 2, or claim 3 wherein said recombinant receptor is a homomultimerizing receptor.

5. The recombinant receptor of claims 1, claim 2, or claim 3 wherein said recombinant receptor is a heteromultimerizing receptor.

6. The recombinant receptor of claim 1, claim 2, claim 3, claim 4, or claim 5 wherein the binding of said prey polypeptide depends upon the modification state of said heterologous bait peptide.

7. The recombinant receptor of claim 6 wherein the modification state is presence or absence of phosphorylation, acetylation, acylation, methylation, ubiquitinilation or glycosylation.

8. The recombinant receptor of claim 6 or claim 7 wherein the change of the modification state is dependent upon binding of a ligand to the ligand-binding domain.

9. A prey polypeptide comprising:

a polypeptide that interacts with a bait polypeptide and

a polypeptide comprising an inhibitor of activation of a receptor and/or a recruitment site for an inhibitor of activation of a receptor.

10. The prey polypeptide of claim 9, comprising:

a polypeptide that interacts with the heterologous bait polypeptide of the recombinant receptor of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8 and a polypeptide comprising an inhibitor of a receptor.

11. A vector encoding the recombinant receptor of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8.

12. A vector encoding the prey polypeptide of claim 9 or claim 10.

13. A eukaryotic cell comprising the recombinant receptor of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8.

14. A eukaryotic cell comprising the prey polypeptide of claim 9 or claim 10.

15. The eukaryotic cell of claim 13 or claim 14, where said cell is selected from the group consisting of a mammalian cell, a fungal cell, and a plant cell.

16. A kit, comprising a cloning vector allowing the construction of the vector of claim 11 or claim 12.

17. A method of screening compounds that disrupt compound-compound binding, said method comprising:

screening compounds with the recombinant receptor of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8 and/or a prey polypeptide comprising a polypeptide that interacts with a bait polypeptide and a polypeptide comprising an inhibitor of activation of a receptor and/or a recruitment site for an inhibitor of activation of a receptor.

18. The method according to claim 17, wherein said compound-compound binding is modification state dependent.

19. The method according to claim 18, wherein said modification is phosphorylation, acetylation, acylation, methylation, ubiquitinilation or glycosylation.

20. The method according to claim 17, claim 18, or claim 19, wherein said binding is mediated by three or more partners.

21. The method according to claim 20, wherein at least one of the partners is not or not completely of proteinaceous nature.